

EXHIBIT

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1 UNITED STATES DISTRICT COURT
2 FOR THE EASTERN DISTRICT OF TENNESSEE
3 GREENEVILLE DIVISION

4 - - - - - :
5 :
6 ULTIMA SERVICES CORPORATION, :
7 :
8 Plaintiff, : CASE NO.
9 :
10 vs. : 2:20-cv-00041
11 :
12 U.S. DEPARTMENT OF :
13 AGRICULTURE, et al., :
14 :
15 Defendants. :
16 :
17 - - - - - :

18 DEPOSITION OF JONATHAN GURRYAN

19 DATE: April 27, 2022
20 TIME: 9:30 a.m.
21 LOCATION: Via Zoom Videoconference
22 REPORTED BY: Constance H. Rhodes
Reporter, Notary

Job No. CS5185100

<p style="text-align: right;">Page 86</p> <p>1 estimate of the relationship between the dependent</p> <p>2 variable and the variable of interest.</p> <p>3 Q Okay. As you just said, in order for an</p> <p>4 omitted variable to bias the results, there would</p> <p>5 have to be a measurable difference in that</p> <p>6 variable and the future measurement, correct?</p> <p>7 A Sorry. It was hard to hear the end of</p> <p>8 the question.</p> <p>9 Q In order for an omitted variable to bias</p> <p>10 the results, there would have to be a measurable</p> <p>11 difference between that variable and the two</p> <p>12 groups you are measuring or you are studying,</p> <p>13 correct?</p> <p>14 A So in the context of running a</p> <p>15 regression, measuring disparities and trying to</p> <p>16 test for discrimination, the variable of interest</p> <p>17 would be a variable that indicated membership in</p> <p>18 the group that you are trying to measure the</p> <p>19 disparity for or the discrimination against. So</p> <p>20 that could be African Americans, it could be</p> <p>21 women. There will be omitted variable bias if</p> <p>22 there is a variable that is not included in the</p>	<p style="text-align: right;">Page 88</p> <p>1 inappropriate to draw a conclusion that the</p> <p>2 difference in outcomes that you measure is the</p> <p>3 result of discrimination because you've assumed that</p> <p>4 this other factor was not a contributor. You</p> <p>5 essentially assumed the answer to the question</p> <p>6 before you started.</p> <p>7 BY MS. DINAN:</p> <p>8 Q In your report you explain -- this is on</p> <p>9 page 12 -- that when performing your regression</p> <p>10 analysis, in order to attribute a measured</p> <p>11 difference to discrimination, it is necessary to</p> <p>12 control for everything besides discrimination that</p> <p>13 might cause the average outcomes of the two groups</p> <p>14 to be different.</p> <p>15 Do you believe that it's possible to</p> <p>16 control for every possible variable that might cause</p> <p>17 the average outcomes of two groups to be different?</p> <p>18 A Using standard datasets like the current</p> <p>19 population survey or the American community</p> <p>20 survey, it is often impossible to do that. That</p> <p>21 is the source of the criticism that I described</p> <p>22 earlier.</p>
<p style="text-align: right;">Page 87</p> <p>1 regression as a control that meets two conditions.</p> <p>2 One is that that variable contributes to the</p> <p>3 outcome; and the other, which is I think what you</p> <p>4 were getting at, is that the variable is</p> <p>5 correlated with the variable of interest which in</p> <p>6 this case would be an indicator variable for being</p> <p>7 a member of the group that you are trying to test</p> <p>8 discrimination in.</p> <p>9 Q Right. So in other words, you think</p> <p>10 there are no differences between the two groups</p> <p>11 you are studying on a particular variable, you</p> <p>12 don't agree it wouldn't be a problem to fail to</p> <p>13 control for it, right?</p> <p>14 MR. ROSMAN: Objection to the form of the</p> <p>15 question. You may answer.</p> <p>16 THE WITNESS: So if we are referring to</p> <p>17 some factor other than discrimination, if you assume</p> <p>18 that that factor is not different between, say,</p> <p>19 African Americans and whites, then -- and if that</p> <p>20 assumption is correct, then failing to control for</p> <p>21 it wouldn't lead to bias. But without testing</p> <p>22 whether that assumption is correct, it would be</p>	<p style="text-align: right;">Page 89</p> <p>1 Q I'm asking a different question. I'm</p> <p>2 asking is it ever possible to control for every</p> <p>3 possible variable that might cause the average</p> <p>4 outcomes of two groups to be different?</p> <p>5 MR. ROSMAN: Objection to the form of the</p> <p>6 question.</p> <p>7 THE WITNESS: I think that's the same</p> <p>8 question. What I'm saying is, because it is often</p> <p>9 impossible using the datasets that people actually</p> <p>10 have access to to control for every factor other</p> <p>11 than discrimination that could cause differences in</p> <p>12 outcomes, it is inappropriate to use that method,</p> <p>13 given that limitation in the data, to draw a</p> <p>14 conclusion that the difference in outcomes that you</p> <p>15 observe must be the result of discrimination as</p> <p>16 opposed to some other thing that it was not possible</p> <p>17 to control for.</p> <p>18 BY MS. DINAN:</p> <p>19 Q But I'm talking about regardless of the</p> <p>20 dataset. You are not using the CPS or the ACS or</p> <p>21 datasets that I understand you have criticisms of,</p> <p>22 is it ever possible to control for every possible</p>

<p style="text-align: right;">Page 98</p> <p>1 you do often analyze large datasets using</p> <p>2 regression analysis. In general, when you perform</p> <p>3 a regression analysis, how do you determine which</p> <p>4 variables to include? What types of information</p> <p>5 would you consider?</p> <p>6 A It would depend on what question I was</p> <p>7 trying to answer with that regression analysis.</p> <p>8 Regressions measure average differences holding</p> <p>9 things constant. They estimate -- calculate</p> <p>10 conditional means, conditional averages. Whether</p> <p>11 those conditional averages answer a particular</p> <p>12 question depends on what question you are trying</p> <p>13 to answer. So if I was trying to answer one</p> <p>14 question I might try to set up the regression one</p> <p>15 way. And if I was trying to answer another</p> <p>16 question, I would set up the regression in a</p> <p>17 different way.</p> <p>18 Q And you don't have any opinion as to how</p> <p>19 you might consider which variables to include in a</p> <p>20 regression to measure discrimination because you</p> <p>21 don't think that's an appropriate method; is that</p> <p>22 correct?</p>	<p style="text-align: right;">Page 100</p> <p>1 assigned the offer of participating in the program.</p> <p>2 And I will sometimes control for other variables</p> <p>3 that, you know, vary across different students in</p> <p>4 the dataset to hold some of those things constant.</p> <p>5 That's one type of situation where I regularly run</p> <p>6 regressions.</p> <p>7 Q Why do you -- you've criticized</p> <p>8 regression analyses quite a bit. Given the flaws</p> <p>9 you've identified, why do you think it's</p> <p>10 appropriate to use it in that context?</p> <p>11 A Just to -- every time you suggest this,</p> <p>12 I'll correct you. I have criticized the use of</p> <p>13 regression to try to test for discrimination. I</p> <p>14 have not criticized the use of regression in</p> <p>15 general. As I've said multiple times, regression</p> <p>16 analysis is a valuable and powerful tool when it</p> <p>17 is used to answer questions that it is appropriate</p> <p>18 to answer.</p> <p>19 So I run regressions all the time. I</p> <p>20 teach a class on the use of regressions and talk</p> <p>21 about all the ways that it can be useful in trying</p> <p>22 to answer questions in social science. And in the</p>
<p style="text-align: right;">Page 99</p> <p>1 A I agree with the assessment of the</p> <p>2 National Academy of Sciences that it is unlikely</p> <p>3 that running a regression and trying to hold</p> <p>4 things constant is likely to be able to rule out</p> <p>5 other nondiscriminatory factors as potential</p> <p>6 explanations, because most datasets that one would</p> <p>7 have access to are unlikely to have all the</p> <p>8 variables you would need to hold all those other</p> <p>9 things constant. And so I would be unlikely to</p> <p>10 use that method to try to test for discrimination</p> <p>11 if testing for discrimination was the thing that I</p> <p>12 was trying to do.</p> <p>13 Q Under what circumstances do you use</p> <p>14 regression analysis?</p> <p>15 A So, for instance, when I'm evaluating</p> <p>16 the effect of a program in schools where we've</p> <p>17 randomly assigned the offer of participation to</p> <p>18 some students and not to others, I will run a</p> <p>19 regression of the outcome that I've specified as</p> <p>20 key outcome we're trying to measure the effect on.</p> <p>21 Let's say it's, for instance, test scores</p> <p>22 or grades on an indicator for having been randomly</p>	<p style="text-align: right;">Page 101</p> <p>1 method that I've just described, because we've</p> <p>2 randomly assigned the offer of participation. I</p> <p>3 don't actually need to control for variables because</p> <p>4 the random assignment makes it so those variables</p> <p>5 are going to be uncorrelated with the key variable</p> <p>6 of interest.</p> <p>7 It can be useful to control for variables</p> <p>8 because it helps improve the precision of the</p> <p>9 estimates. It reduces the confidence intervals</p> <p>10 essentially or the margin of error in the estimates.</p> <p>11 There are other situations where when we</p> <p>12 randomly assign the offer of participation in a</p> <p>13 program, the probability of being assigned to the</p> <p>14 treatment group varies across, say, schools or</p> <p>15 grades; and in that situation you have to control</p> <p>16 for school or grade effects to make it so that the</p> <p>17 random assignment is comparing people who had equal</p> <p>18 chances of being offered participation in the</p> <p>19 program.</p> <p>20 Q Is it fair to say that regression</p> <p>21 analysis is commonly used by economists studying</p> <p>22 or testing for discrimination?</p>

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<p>1 A I would not say it is commonly -- it is</p> <p>2 commonly used -- I would not say that regression</p> <p>3 is commonly used as a method to test for</p> <p>4 discrimination in peer-reviewed studies that are</p> <p>5 published in the last decade or so. I would say</p> <p>6 that regression is a method that is commonly used</p> <p>7 by economists to study other things. And I would</p> <p>8 also say that regression is a method that is</p> <p>9 commonly used by economists who are documenting</p> <p>10 disparities.</p> <p>11 Q It's commonly used by economists for</p> <p>12 documenting disparities but not necessarily</p> <p>13 testing for the presence of discrimination?</p> <p>14 A That's -- I would -- that would be my</p> <p>15 assessment, yes.</p> <p>16 Can I just clarify the question? I assume</p> <p>17 when you say -- when you are asking what economists</p> <p>18 are doing, I assume you are talking about in</p> <p>19 peer-reviewed academic journals. I couldn't tell</p> <p>20 you what economists are doing on their own time or</p> <p>21 in other settings that are not peer-reviewed</p> <p>22 settings.</p>	<p>1 that are themselves tainted by discrimination if</p> <p>2 you're measuring for discrimination?</p> <p>3 MR. ROSMAN: Well, I'll object because I</p> <p>4 think it has been answered in prior testimony. But</p> <p>5 please answer.</p> <p>6 THE WITNESS: So I will -- I agree that if</p> <p>7 one controls for a variable that is affected by</p> <p>8 discrimination in the market that you are trying to</p> <p>9 test for that that can cause you to understate the</p> <p>10 effects of discrimination. But it is also the case</p> <p>11 that if there are differences in some factor of that</p> <p>12 type as affected by discrimination that happened</p> <p>13 elsewhere, whether it was in some other market or</p> <p>14 long ago, that failing to control for those</p> <p>15 differences also causes you to mismeasure</p> <p>16 discrimination.</p> <p>17 BY MS. DINAN:</p> <p>18 Q Moving on to the next section of your</p> <p>19 report on external validity. That's 6.1.2 on page</p> <p>20 12. You say that finding on disparity in one</p> <p>21 market does not imply there is necessarily a</p> <p>22 similar disparity in another market.</p>
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<p>1 Q Fair enough. I take it that's what</p> <p>2 you're most familiar with -- the context in which</p> <p>3 you're most familiar with how other economists</p> <p>4 work; is that right?</p> <p>5 A Or presenting their work. But, you</p> <p>6 know, I'm -- if there are the other settings that</p> <p>7 economists are running regressions to test for</p> <p>8 discrimination, they are not using methods that</p> <p>9 could get published in peer-reviewed studies.</p> <p>10 I recognize that, you know, Dr. Wainwright</p> <p>11 included hundreds of studies where there were</p> <p>12 regressions run in these disparity studies, which I</p> <p>13 had criticized. So I recognize that there are</p> <p>14 economists who are using those methods. They just</p> <p>15 are methods that are not appropriate for testing for</p> <p>16 discrimination, and they are not methods that could</p> <p>17 be used in studies that could get published in</p> <p>18 peer-reviewed studies.</p> <p>19 Q We touched on this briefly earlier, but</p> <p>20 just to confirm, would you agree that it's not</p> <p>21 appropriate to rely on measures of qualifications,</p> <p>22 abilities, or capacities in regression analysis</p>	<p>1 Do you believe that if you analyze a</p> <p>2 number of different markets or industries and the</p> <p>3 results consistently show the same disparities, that</p> <p>4 would give you greater confidence on the external</p> <p>5 validity of your results?</p> <p>6 A I believe that there could be</p> <p>7 discrimination in some markets and not</p> <p>8 discrimination in others. I believe that if you</p> <p>9 find discrimination in some markets, it does not</p> <p>10 necessarily mean that there's discrimination in</p> <p>11 others.</p> <p>12 I also believe that if you analyze</p> <p>13 discrimination in a market that is broader than the</p> <p>14 market that you're trying to measure discrimination</p> <p>15 in and you find a disparity or even</p> <p>16 discrimination -- evidence of discrimination, that</p> <p>17 that may mean that there's discrimination in one</p> <p>18 part of the market but not the other.</p> <p>19 Q Okay. Would your answer be different if</p> <p>20 what you're testing for is the presence of</p> <p>21 discrimination in the economy as a whole?</p> <p>22 A What do you mean by "discrimination in</p>

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<p>1 controlling for in his report. Yes.</p> <p>2 Q Do you recall what those variables were?</p> <p>3 A They are variables like the corporate</p> <p>4 structure of the business and the level of</p> <p>5 confidential or top secret clearance of the</p> <p>6 business; the size of the business measured by</p> <p>7 employment or revenues; how old the business is;</p> <p>8 whether the business owner is a veteran, disabled</p> <p>9 veteran; and then whether the business is in the</p> <p>10 8(a) program or not; whether the business is woman</p> <p>11 owned or minority owned. I believe there might be</p> <p>12 some others.</p> <p>13 Q Were you able to identify any variable</p> <p>14 that you believe should have been controlled for</p> <p>15 by Mr. Chow that might have affected the average</p> <p>16 outcomes of the group he was measuring that he did</p> <p>17 not control for?</p> <p>18 A Again, I'll just have to correct that.</p> <p>19 I'm not offering an opinion about what someone</p> <p>20 should or should not have controlled for. I'm</p> <p>21 offering an opinion about whether the conclusion</p> <p>22 based on the analysis that was run, that the</p>	<p>1 result of discrimination as opposed to something</p> <p>2 else like potential differences in the bids that</p> <p>3 are submitted and the frequency with which</p> <p>4 businesses submit bids.</p> <p>5 Q And if you were to, how would you</p> <p>6 measure bidding behavior of businesses?</p> <p>7 A You would need data on the frequency</p> <p>8 with which businesses in the sample submitted</p> <p>9 bids, and what their bids were. Ideally, you</p> <p>10 would want other features of the bids to hold</p> <p>11 constant the -- what they were proposing to do in</p> <p>12 the work.</p> <p>13 It might -- you know, exactly what you</p> <p>14 would want to control for would vary depending on</p> <p>15 what type of contract was being bid on and the rules</p> <p>16 of the contracting bid process. But you'd have to</p> <p>17 sort of think through all that and learn all of that</p> <p>18 to design a study that could control those things in</p> <p>19 the right way.</p> <p>20 Q Are you aware of any dataset that</p> <p>21 includes that type of information?</p> <p>22 A There definitely are datasets that</p>
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<p>1 disparity is the result of discrimination as</p> <p>2 opposed to some other factor, is appropriate.</p> <p>3 But with that caveat, as I've described in</p> <p>4 my report, one type of variable that is not</p> <p>5 controlled for in Mr. Chow's analysis is whether</p> <p>6 businesses bid on contracts, the frequency with</p> <p>7 which they bid on -- bid for contracts, or what</p> <p>8 their bids were.</p> <p>9 Q Now, we've discussed bidding behavior</p> <p>10 pretty extensively, but, again, as you've</p> <p>11 testified, I guess, have you seen any evidence</p> <p>12 that there is a difference in bidding behavior and</p> <p>13 the frequency of bidding or the number of bids</p> <p>14 submitted between minority-owned businesses and</p> <p>15 nonminority-owned businesses?</p> <p>16 A I'm not aware of evidence on that. I</p> <p>17 don't know. There might be evidence on that, but</p> <p>18 my opinion is that without controlling for bidding</p> <p>19 behavior and without some knowledge that there</p> <p>20 isn't differences in bidding behavior, it's</p> <p>21 inappropriate to draw the conclusion that the</p> <p>22 differences in rates of winning awards is the</p>	<p>1 include bidding behavior by firms in contracting.</p> <p>2 There are studies that have used a dataset like</p> <p>3 this.</p> <p>4 Q Okay. Have you yourself performed any</p> <p>5 analysis of firms' bidding behavior?</p> <p>6 A I have not myself, no. But I'm aware of</p> <p>7 studies that have.</p> <p>8 Q Okay. Did you attempt to review</p> <p>9 Mr. Chow's analysis with bidding behavior</p> <p>10 included?</p> <p>11 A No.</p> <p>12 Q Why not?</p> <p>13 A I wasn't asked to perform my own</p> <p>14 analysis. I was asked to comment on the methods</p> <p>15 and the conclusions reached by the experts,</p> <p>16 including Mr. Chow, I also believe that the data</p> <p>17 that Mr. Chow shared is fundamentally flawed for</p> <p>18 answering the question, and so I don't believe it</p> <p>19 would have made sense to try to make changes to</p> <p>20 the analysis using that flawed data to answer a</p> <p>21 question about the likelihood of winning</p> <p>22 contracts.</p>